

What is claimed is:

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1. A color picture tube apparatus comprising  
a color picture tube provided with an electron gun and a phosphor  
screen on which an electron beam emitted from said electron gun impacts, in a  
bulb including a front panel and a funnel, and

a deflection yoke attached to a neck portion of said bulb and  
deflecting said electron beam, wherein

an upper and lower pincushion distortion in a peripheral portion  
10 in the vertical direction is increased by making a preliminary vertical  
deflection force when an electron beam is deflected toward the peripheral  
portion in the vertical direction of said phosphor screen relatively smaller  
than the preliminary vertical deflection force when an electron beam is  
deflected toward the middle portion in the vertical direction of said phosphor  
15 screen, and

said upper and lower pincushion distortion in the peripheral  
portion in the vertical direction is corrected by a deflection magnetic field  
generated by said deflection yoke, thereby correcting an upper and lower  
inner pincushion distortion in said middle portion in the vertical direction.

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2. The color picture tube apparatus according to claim 1, further  
comprising a correction coil mounted at the side of said electron gun of said  
deflection yoke, for providing said electron beam with said preliminary  
deflection force, wherein

25 a vertical deflection current flows through said correction coil  
when said electron beam is deflected toward the peripheral portion in the  
vertical direction of said phosphor screen, but a vertical deflection current  
does not flow through said correction coil when said electron beam is deflected  
toward the middle portion in the vertical direction, and

30 said correction coil generates a preliminary deflection magnetic  
field opposing the vertical deflection magnetic field by said current flowing  
when the electron beam is deflected toward the peripheral portion in the

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vertical direction.

3. The color picture tube apparatus according to claim 2, wherein at least a pair of said correction coils provided at right and left sides of said neck portion so that said correction coils sandwich said electron beam in the horizontal direction, a circuit in which at least two diodes are connected in parallel having opposite polarities with each other and vertical deflection coils of said deflection yoke are connected in series, and

said vertical deflection current flows through said correction coil via the conduction of said diode when said electron beam is deflected toward the peripheral portion in the vertical direction of said phosphor screen.

4. A color picture tube apparatus comprising

a color picture tube provided with an electron gun and a phosphor screen on which electron beam emitted from said electron gun impacts, in a bulb including a front panel and a funnel,

a deflection yoke attached to a neck portion of said bulb and deflecting said electron beam, and

a correction coil provided at the side of said electron gun in said deflection yoke and providing said electron beam with a preliminary deflection force, wherein

at least a pair of said correction coils provided at right and left sides of said neck portion so that said correction coils sandwich said electron beam in the horizontal direction, a circuit in which at least two diodes are connected in parallel having opposite polarities with each other, and vertical deflection coils of said deflection yoke are connected in series, and

said vertical deflection current flows through said correction coil via a conduction of said diode when said electron beam is deflected toward the peripheral portion in the vertical direction of said phosphor screen, but vertical deflection current does not flow through said correction coil when said electron beam is deflected toward the middle portion in the vertical direction, and said correction coil generates the preliminary deflection magnetic field

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